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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,507	11/19/2003	Ronald D. McCallister	1826-310RI	1244

7590 07/11/2006

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EXAMINER	
CORRIELUS, JEAN B	

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/718,507	MCCALLISTER ET AL.	
	Examiner	Art Unit	
	Jean B Corrielus	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-15,17-29 and 38-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14,19 and 20* is/are allowed.

6)☒ Claim(s) *2-5,9,11-13,15,17,18,21-23,28,29,38-46,50,52-54,56-60,63 and 64* is/are rejected.

7)☒ Claim(s) *6-8,10,24-27,47-49,51,55,61 and 62* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 43-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 43 depends on canceled claim 31, the claim is therefore rejected as being incomplete. The claim is therefore withdrawn from further consideration and will not be further examined on the merit.

The same comment applies to claim 44.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-5, 9, 11-13, 15, 17-18, 21-23, 28-29, 38-42, 45-46, 50, 52-54, 56-60, 63 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over May et al in view of Cova US Patent No. 6,141,390.

As per claim 5, May teaches a transmitter circuit see page 2474, col. 1, line 4 comprising inherently a modulated signal generator for generating a first modulated signal **s (t)** (note that in order to generate the modulated signal s (t)

a pulse spreading filter has to be used) conveying to be communicated data having a first bandwidth and having a first peak-to-average amplitude ratio see page 2474, col. 2, lines 2-8 and page 2475, col. 1, lines 36-38; generating a constrained bandwidth error signal K (t) in response to said first modulated signal s(t) (note that in order to generate the error signal K(t), a constrained envelope generator having a pulse spreading filter has to be used, hence such an element is inherent in may et al) see page 2475, col. 2, line 1; combining said error signal K(t) with the modulated signal s(t) see page 2475, col. 2, last three equations (note that in order to combine the signal a combining circuit has to be used, hence a combining circuit is inherent in May) to produce a second modulated signal conveying said to be communicated data having said first BW and said first PAR see page 2475, col. 1 section B- page 2476, col. 1, first full paragraph. In addition, as noted in the inventor submission filed on 7/5/05, a delay coupled between said modulated signal generator and said combining circuit to delay said first modulated signal into synchronism with said constrained bandwidth error signal, is inherent. However, May et al does not teach the inclusion of a linearizer or linearizing limitations (i. e. May does not teach the limitation of predistorting the modulated signal prior to linear amplification). In the same field of endeavor, Dent et al discloses an amplification system comprising a digital predistortion circuit 28 (digital linearizer) configured to predistort a modulated signal generated by DSP modulator 30 into a predistorted signal see fig. 1; a digital to analog converter 22 coupled between the predistortion circuit 28 and an RF amplifying circuit 10 coupled the D/A converter 22 and configured to

generate an RF broadcast signal from the predistorted signal. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in May et al in order to compensate for intermodulation distortion at the output of the linear amplifier see col. 2, lines 4-16.

As per claim 2, a Nyquist filter is well known in the art as a pulse spreading filter. Given that fact, it would have been obvious to one skill in the art to implement the pulse spreading filter as a nyquist filter so as to take advantage of its enhanced technological features.

As per claim 3, the combining combines both the filtered signal and the error signal to reduce a peak magnitude component of said filtered signal see page 2475, col. 1 section B- page 2476, col. 1, first full paragraph.

As per claim 4 the signal is a complex signal hence the combining circuit has to be a complex summing circuit in order to combine the complex signal.

As per claim 9, it would have been obvious to one skill in the art to configure the first and the second pulse spreading filters in such a way as to exhibit equivalent transfer characteristics in order to satisfy system requirements.

As per claim 11 the filtered signal stream is a stream of complex signal exhibiting a peak magnitude component and said envelope generator determines when ones of said peak magnitude components exceed a threshold see fig. 2.

As per claim 12, page 2475 first full paragraph on the left column, May teaches that the transmitter generates all possible signals (phase point) corresponding to a data sequence (constellation) and chose the most suitable one for transmission (selecting based on a threshold see fig. 2) in order to

perform such a signal translation (mapping) a mapper has to be used in May. In addition, the threshold is equal to a magnitude of said maximum magnitude phase point see fig. 2.

As per claim 13, it would have been obvious to one skill in the art to use an interleaver coupled to the mapper in order to minimize signal error in reconstructing the signal at the receiver.

As per claim 15, see claim 5 above.

As per claim 17, the combining step comprising the step of reducing a peak magnitude component of said filtered signal. page 2475 last full paragraph on the left column of the May reference.

As per claim 18, said generating comprises filtering an error signal stream having one error pulse per unit baud interval to produce said error signal, said filtering step spreading energy from each pulse in said error signal stream over a plurality of unit interval see May page 2475 right column.

As per claim 21, said filtered signal stream includes two or more complex digital values per unit baud interval, said complex digital values in said filtered signal stream exhibiting local peak magnitudes; and said generating step is configured so that said constrained-bandwidth error signal stream includes two or more complex values per unit baud interval, said complex values in said constrained-bandwidth error signal stream being responsive to said local peak magnitudes of said filtered signal stream so as to spread energy from selected ones of said local peak magnitudes over a plurality of unit baud intervals of said constrained-bandwidth error signal stream see fig. 2 of the May reference.

As per claim 22, said envelope signal is continuously transmitted see fig. 2.

As per claim 23, see claim 12.

As per claim 28, see claim 13.

As per claim 29, the constellation is an amplitude and PSK constellation see page 2477 right hand column.

As per claim 38, it would have been obvious to one skill in the art to implement the delay as a fixed delay rather than a variable delay so as to reduce system complexity.

As per claim 39, see claim 38.

As per claim 40, see claim 38.

As per claim 41, see claim 5.

As per claim 42, see claim 2.

As per claim 45, see claim 5.

As per claim 46, see claim 38.

As per claim 50, see claim 9.

As per claim 52, see claim 11.

As per claim 53, see claim 12.

As per claim 54, see claim 12.

As per claim 56, see claim 5.

As per claim 57, see claim 5.

As per claim 58, see claim 3.

As per claim 59, see claim 18.

As per claim 60, see claim 38.

As per claim 63, see claim 21.

As per claim 64, see claim 22.

Allowable Subject Matter

5. Claims 6-8, 10, 24-27, 47-49, 51, 55, 61 and 62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 14 and 19-20 are allowed

Response to Arguments

7. Applicant's arguments with respect to claims 5 and 18 (including dependent claims and other base claims) have been considered but are not persuasive. Applicant alleged that May does not teach how to delay "the input signal" and how to time align the scaled band limited pulse shape "so that the pulse peak and signal peak are time coincident" however it is noted that the inventor submission clearly states the opposite. In addition, it is the applicant's position that the alleged" delay in May" would be inherent. However, applicant did not provide any evidence to that effect. It is further alleged that one skill in the art would not be able to enable the delay in May without undue experimentation. However, applicant did not provide any evidence to that effect. It is therefore the

examiner's position that the inventor is the better expert in the field of his own invention. A delay according to the inventor is inherent in May reference and that one skill in the art would be able to implement such a delay without undue experimentation. Applicant's further argues that the inventor's submission is an un-sworn opinion. However, the examiner is not aware of any requirement that the inventor has to submit a sworn opinion.

Response to Amendment

8. The Declaration under 37 CFR 1.132 filed 5/30/06 is insufficient to overcome the rejection of claims 2-11, 13-20 based upon the inventor's submission filed on 7/6/05 as set forth in the last Office action because: the affidavit only argues that the inventor submission does not flow from the teaching of the May reference. The affidavit, however does not provide any evidence(s), if it exists, to that effect. It is therefore the examiner's position that the inventor is the better expert in the field of his own invention and that the affidavit is insufficient to overcome the inventor's submission.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jean B Corrielus
Primary Examiner
Art Unit 2611
9.7.06